REMARKS

Status of the Claims

Claims 8-18 are pending, with claim 8 being independent. Claims 1-7 and 19-23, directed to non-elected subject matter, have been canceled without prejudice to or disclaimer of the subject matter contained therein. Applicants expressly reserve the right to file one or more continuation/divisional applications directed to the non-elected subject matter. Without conceding the propriety of the rejections, claim 12 has been amended to even more clearly recite and distinctly claim the invention. No new matter has been added.

Applicants respectfully request reconsideration and withdrawal of the outstanding rejections in view of the foregoing amendments and the following remarks.

Amendments to the Specification

The paragraph beginning on page 7, line 1 and ending on page 7, line 16, and the paragraph beginning on page 10, line 3 and ending on page 10, line 13, have been amended to correct minor typographical errors. No new matter has been added.

Information Disclosure Statement

European Patent No. 0433778A1, contained in the Information Disclosure Statement submitted on September 16, 2002, was denied consideration on the basis that the Information Disclosure Statement did not include a concise explanation of the relevance of the patent. However,

> Where the information listed [on an Information Disclosure Statement] is not in the English language, but was cited in a search report or other action by a foreign patent office in a counterpart foreign application, the requirement for a concise explanation of relevance can be satisfied by ***submitting an English-language version of the search report*** or action which indicates the degree of relevance found by the foreign office. This may be an explanation of which portion of the reference is particularly relevant, to which claims it applies, or merely an "X", "Y", or "A" indication on a search report. MPEP § 609.III.A(3) (emphasis added).

The Information Disclosure Statement contained the Written Opinion dated August 23, 2002 for PCT/US01/43152 as well as the Notification of Transmittal of the International Search Report or the Declaration dated August 21, 2002 for PCT/US01/43152, both of which were considered by the Examiner. Accordingly, Applicants respectfully submit that the Information Disclosure Statement submitted on September 16, 2002, does comply with 37 CFR 1.98(a)(3), and thus respectfully request the Examiner to consider European Patent No. 0433778A1.

Further, Applicants note that on the returned PTO-1449 form the initials of the Examiner have not been placed adjacent to the citation for U.S. Publication No. US2001/0003271A1 to Otsuki, published June 14, 2001. Accordingly, Applicants respectfully request that the initials of the Examiner be placed adjacent to the citation for U.S. Publication No. US2001/0003271A1 to Otsuki, published June 14, 2001. For the Examiner's convenience, a copy of the previously initialed PTO-1449 form is attached hereto for use in adding the Examiner's initials to the two document citations discussed above.

Claim Interpretation

With reference to claim 16, the Official Action takes the position that a prior art teaching of a component surface in contact with the plasma sprayed coating will read on the limitation of "roughened surface in contact with the plasma sprayed coating." However, Applicants note that claims limitations are to be interpreted in light of the specification in giving them their broadest reasonable interpretation. *In re Marosi, Stabenow, and Schwarzmann*, 218 USPQ 289 (Fed. Cir. 1983) (reversing the U.S. Patent and Trademark Office's rejection based on the second paragraph of 35 U.S.C. §112). *See also In re Cortright*, 49 USPQ2d 1464 (Fed. Cir. 1999) (reversing the Board of Patent Appeals and Interferences' rejection of claim 1).

In the present application, page 7, line 20 of the specification recites that "the surface [of the substrate] can be roughened by known methods such as grit blasting prior to coating." Further, originally filed claim 6 recited "subjecting the surface of the component to a surface roughening treatment prior to depositing the liquid crystalline polymer coating." Accordingly, Applicants respectfully submit that, as would readily be understood by one of ordinary skill in the art, a "roughened surface"

as recited in claim 16 means a surface subjected to a surface roughening treatment before the plasma sprayed coating is applied.

Claim Objections

Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Without conceding the propriety of the objection and in order to expedite prosecution, claim 12 has been amended to even more clearly recite and distinctly claim the invention. Accordingly, the objection to claim 12 has been obviated.

Claim Rejections under 35 U.S.C. § 103

Claims 8-16 and 18 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over USPN 6,326,597 ("Lubomirsky") in view of USPN 6,120,854 ("Clarke"). The rejection is respectfully traversed.

According to the presently claimed invention, it has been discovered that liquid crystalline polymers provide erosion resistant surfaces that can reduce the levels of particulate contamination in reactor chambers. (Page 6, Lines 8-14). Thus, claim 8 recites a component of semiconductor processing equipment comprising a liquid crystalline polymer ***on*** an outer surface thereof. Claims 9-18 are dependent upon claim 8 and thus recite further limitations. For example, claim 9 recites that the liquid crystalline polymer comprises a ***coating*** on a surface of a substrate.

As explained in the Applicants' specification, material from the internal surfaces of high density etch chambers is removed as a result of ion bombardment by either physical sputtering or chemical sputtering, depending on the composition of the material and the composition of the etch gas. (Page 5, Lines 12-15). The presently claimed invention addresses the need in the art for improvements in materials and/or coatings used for components of semiconductor processing equipment and provides an effective way to provide corrosion resistance to the surfaces of components of semiconductor processing apparatus. (Page 5, Lines 15-24). The components themselves can be made from a liquid crystalline polymer or the plasma exposed surfaces of the components can be coated or otherwise covered with a liquid crystalline polymer. (Page 5, Line 28 – Page 6, Line 2).

In the Official Action, Lubomirsky is cited for disclosure of a component of a semiconductor processing apparatus having a polymer in the outer surface thereof. The Official Action acknowledges that Lubomirsky fails to explicitly disclose that the polymer material is a liquid crystal polymer. Clarke is cited for disclosure of a liquid crystal polymer which provides enhanced surface durability or operational performance and cuts maintenance costs over non liquid crystal polymer. The Official Action contends that it would have been obvious to one having ordinary skill in the art, at the time of the invention, to modify Lubomirsky to include a liquid crystal polymer on an outer surface to increase durability of the surface and decrease maintenance costs. As explained below, the applied references fail to suggest the combinations of features recited in claim 8 and the claims dependent thereon.

Lubomirsky relates to a temperature control system for process chambers. Lubomirsky discloses that generally a process chamber "is fabricated from a variety of materials including metals, ceramics, and polymers." (Column 4, Lines 6-9). Lubomirsky does not disclose the composition of ***the outer surface*** of a component of a semiconductor processing apparatus.

Clarke does not relate to semiconductor processing. Instead, Clarke discloses plasma spraying of particulate thermotropic liquid crystalline polymers onto the surfaces of composite and metallic structures, such as a structure on a ship or on a military or commercial aircraft which is subject to substantial damage and degradation due to oxidation, moisture, erosion, fouling, salt spray, wear, ultraviolet radiation, impact, thermal cycling, corrosion and/or other forces. Clarke discloses a combination of plasma spraying and advanced particulate polymeric composition based upon thermotropic liquid crystalline polymers to achieve the extraordinary ability to enhance the durability of the surfaces of composite and metallic structures. (Column 1, Lines 54-63).

1. <u>Reliance on Non-Analogous Art Renders Rejections Improper</u>

"In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). *See also In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); *In re*

Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992); and *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). MPEP § 2141.01(a).

It is respectfully submitted that Clarke is non-analogous art. Clarke relates to protecting composite or metallic substrates on a ship or on a military or commercial aircraft. Such vehicles have nothing to do with semiconductor processing, rendering Clarke non-analogous art. Accordingly, claim 8 is patentable over the combination of Lubomirsky and Clarke.

2. Lack of Motivation Renders Rejections Improper

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143.

It is respectfully submitted that there is no motivation to combine the cited art as the teachings of Lubomirsky and Clarke are so unrelated that a person of ordinary skill in the art would not have been led to combine them in the manner proposed in the Official Action. Applicants submit that the motivation to modify the prior art references must flow from some teaching in the art that suggests the desirability or incentive to make the modifications needed to arrive at the claimed invention. *In re Napier*, 55 F.2d 610, 613; 34 USPQ2d 1782, 1784 (Fed. Cir. 1995). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the claimed combination. *In re Geiger*, 815 F.2d 686, 688; 2 USPQ2d 1276, 1278 (Fed. Cir. 1987). As stated in *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000),

> Most if not all inventions arise from a combination of old elements. Thus, every element of a claimed invention may often be found in the prior art. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making

the specific combination that was made by the applicant. (citations omitted).

Lubomirsky merely discloses that generally a process chamber is fabricated from a variety of materials including metals, ceramics, and polymers. Lubomirsky does not address the problem of corrosion of components of semiconductor processing equipment. As Lubomirsky does not address this problem, Lubomirsky does not provide a suggestion for improving the corrosion resistance of the components, and specifically improving the corrosion resistance by coating the components with liquid crystalline polymer on an outer surface thereof, which would provide erosion resistance superior to a process chamber comprising a combination of metal and polymer. Clarke, on the other hand, relates to protecting composite or metallic substrates on a ship or on a military or commercial aircraft, uses which have nothing to do with semiconductor processing equipment.

Clarke discloses plasma spraying of particulate thermotropic liquid crystalline polymers onto the surfaces of composite and metallic structures, such as structures on ships or on military or commercial aircrafts. Applicants respectfully submit that there is no suggestion or motivation for combining any feature of Clarke with Lubomirksy. As such, Applicants respectfully submit that the Official Action has merely attempted to pick and choose individual teachings from the different pieces of prior art to create the combination upon which the rejection of the present claims is based. This is an error as a matter of law. *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1552, 220 USPQ 303 312 (Fed. Cir. 1983).

Therefore, withdrawal of the obviousness rejection over Lubomirsky in view of Clarke is respectfully requested.

Claim 17 is rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Lubomirsky and Clarke and further in view of USPN 5,397,502 ("Waggoner"). Applicants respectfully traverse this rejection.

Waggoner is cited for disclosure of a liquid crystalline polymer containing a filler. Waggoner does not relate to semiconductor processing. Instead, Waggoner relates to certain liquid crystalline polymers containing alkali metal, magnesium, or calcium. Waggoner discloses that in addition to the alkali metal, magnesium, and calcium (salts) present in the liquid crystalline polymer, the compositions may also

contain other materials, including, but not limited to, fillers (such as talc, clay, glass fiber, carbon fiber, and aramid fiber). Waggoner further discloses that amounts of alkali metal, magnesium, and calcium above 3,000 ppm are considered "fillers". (Column 3, Lines 18-35).

Waggoner merely discloses the inclusion of fillers in liquid crystalline polymers and fails to cure the deficiencies noted above with respect to Lubomirsky and Clarke. Therefore, withdrawal of the obviousness rejections over Lubomirsky and Clarke and further in view of Waggoner is respectfully requested.

Conclusion

Without conceding the propriety of the rejections, claim 12 has been amended, as provided above, to even more clearly recite and distinctly claim Applicants' invention and to pursue an early allowance.

For the reasons noted above, the prior art applied against the claims does not disclose or suggest the presently claimed invention.

In view of the foregoing amendments and remarks, reconsideration of the claims and allowance of the subject application is earnestly solicited. The Examiner is invited to contact the undersigned at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: _____
Asaf Batelman
Registration No. 52,600

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620

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